DUFRESNE-HENRY, INC.
Precision Park
NORTH SPRINGFIELD, VERMONT 05150

(802) 886-2261

LETTER OF TRANSMITTAL

DATE	JOB NO.
12/17/97	4170077

ATTENTION: MR. ROBERT BUTLER

RE: MAC NELLIS RESIDENCE

EMS # 97-2202

TO AGENCY OF NATURAL RESOURCES
DEC, WMD, SMS
103 SOUTH MAIN STREET/WEST OFFICE
WATERBURY, VT 05671-0404

GENTLEMEN:

WE ARE SENDING YOU ☒ Attached ☐ Under separate cover via _____ the following items:

☐ Shop drawings ☐ Prints ☐ Plans ☐ Samples ☐ Specifications

☐ Copy of letter ☐ Change order ☐ _____

COPIES	DATE	NO.	DESCRIPTION
1			SITE INVESTIGATION REPORT

THESE ARE TRANSMITTED as checked below:

☐ For approval ☐ Approved as submitted ☐ Resubmit _____ copies for approval

☐ For your use ☐ Approved as noted ☐ Submit _____ copies for distribution

☒ As requested ☐ Returned for corrections ☐ Return _____ corrected prints

☐ For review and comment ☐ _____

☐ FOR BIDS DUE _____ 19_____ ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS _____

COPY TO SHIRLEY MAC NELLIS

SIGNED: Bruce Coy

If enclosures are not as noted, kindly notify us at once.

Phase (check one)	Type (check one)
☒ Initial Site Investigation ☐ Corrective Action Feasibility Investigation ☐ Corrective Action Plan ☐ Corrective Action Summary Report ☐ Operations & Monitoring Report	☐ Work Scope ☒ Technical Report ☐ PCF Reimbursement Request ☐ General Correspondence

INITIAL SITE INVESTIGATION

Mac Nellis Residence
Weston, VT 05161

SMS Site #97-2202

A Facility Owned By:
Shirley Mac Nellis
101 Johnson Hill Road
Weston, VT 05161
(802) 824-6818
Contact: Shirley Mac Nellis

Prepared By:
Dufresne-Henry, Inc.
Precision Park
North Springfield, VT 05150
(802) 886-2261
Contact: Bruce H. Cox, P.E.

December 17, 1997

TABLE OF CONTENTS

EXECUTIVE SUMMARY

An Initial Site Investigation has been completed at the Mac Nellis residence in Weston, Vermont. The investigation was in response to the discovery of a #2 heating oil release during a Tank Closure Assessment in June 1997. One (1) of the two (2) UST's was found to have a 1/8" perforation in the bottom at one end. Contamination of soil was confirmed. Although probable bedrock was encountered, the water table was not observed. All soil excavated from the tank excavations was backfilled pending additional investigation.

Five (5) Geoprobe® test borings were completed to, or near, refusal in November 1997. One of the borings was in the upgradient direction, two were immediately adjacent to the former UST's, and two were in downgradient directions. Soil samples from the bottoms of four (4) of the borings contained no compounds above detection limits when analyzed for VOC's by EPA Method 8020(mod) and for TPH by EPA Method 8100(mod). A sample from the on-site drinking water well contained no compounds above detection limits when analyzed by EPA Method 8020(mod).

Soil on the site is till and till fill with a high silt content. The permeability is judged to be relatively low. The depth to bedrock ranges from approximately 6'9" to approximately 11'8", with the surface generally sloping to the south and southeast. Based on the bedrock slope and the site topography, the direction of groundwater flow is expected to also be to the south and southeast.

All of the properties within a one-half mile radius are expected to have private water supplies. The nearest mapped structure in the downgradient direction is approximately 1,000 feet to the southeast. The nearest private water well is that serving the subject property. It is located approximately 55' northwest of the former UST's. The nearest surface water is the West River approximately 1,800 feet to the east and approximately 300 lower in elevation. It is not expected that any of these potential receptors have been, or will be, impacted by leakage at the site. No petroleum odors were observed in the residence during the investigation, nor have any been reported by the owner. A PID screening of the house showed 0 ppm in the upper and lower level living spaces, and 2.0 ppm in the basement.

Soil contamination on the site appears to be limited to the immediate vicinity of the former UST's. Groundwater was not observed at the time of the UST closure, nor during the site investigation. Plume migration from any short term seasonal high water table conditions is likely to be minimal. It is expected that natural degradation of the plume will occur on site.

Based on these findings, the site does not meet the SMS criteria for corrective actions. It is recommended that the site be considered for a Site Management Activity Completed (SMAC) designation.

INITIAL SITE INVESTIGATION
MAC NELLIS RESIDENCE
WESTON, VERMONT

Introduction

The Mac Nellis residence is located on Johnson Hill Road in Weston, Vermont. A site location map is included as Appendix A.

Dufresne-Henry, Inc., in conjunction with Great Northern Environmental Services, performed a Tank Closure Assessment at the site on June 26, 1997. The subjects were one (1) 2,000 gallon #2 heating oil, single wall, steel UST, and one (1) 1,000 gallon #2 heating oil, single wall, steel UST. The larger tank had failed, and the smaller one was noted as being in poor condition. Headspace PID readings of soil samples were up to 315 ppm. Groundwater was not encountered. Due to the contamination observed, and the lack of a suitable area for polyencapsulation, the excavation was backfilled pending additional investigation.

Work and Health and Safety Plans

As a result of the findings of the Tank Closure Assessment, the Sites Management Section (SMS) requested additional investigation at the property in a letter dated October 2, 1997. Dufresne-Henry prepared a Work Plan and a Health and Safety Plan for the proposed activities at the site. A copy of the proposed work plan was forwarded to the Hazardous Materials Management Division (HMMD) for review on October 21, 1997. The work plan was approved via an e-mail dated October 31, 1997. Copies of these documents will be found in Appendix B. The remainder of this report describes the on-site activities and subsequent findings based on that work plan.

Site Description

The Mac Nellis residence is located on the north side of Johnson Hill Road in Weston,

Vermont. The property consists of a two story house and a detached garage. The site slopes to the east. The area immediately to the east of the house has been cleared and is very steep. The remainder of the property is woodland. The surrounding land is largely undeveloped or in residential use.

The former UST's were located just west of the house and were oriented in a north-south direction. Both tanks had been installed approximately 22 years ago. As previously noted, one of the tanks had failed from a 1/8 inch diameter perforation, and the other was in poor condition. Joints for the distribution lines were loose, but not leaking. Soil staining with strong petroleum odors was observed.

The on-site drinking water well is located approximately 75 feet northwest of the house. The on-site wastewater disposal system is located approximately 30 feet south of the house.

Site History

The history of the site is not known, except that it has been in residential use for at least 22 years. No other UST's are known to exist on the property. With the probable exception of small quantities of gasoline and oil for yard maintenance, and household maintenance products, no other known hazardous materials are stored on the property.

The Agency of Natural Resources (ANR) Third Quarter 1997 Update, Vermont Hazardous Sites List (October 1997) contains two (2) other sites in Weston, and seven (7) sites in Londonderry. None of the sites are within a half-mile radius of the subject property, and none are judged to have any impact on the property.

Test Borings

Five (5) shallow test borings were completed on November 18 1997 by Eastern Analytical, Inc. of Concord, New Hampshire. The borings were under the field observation of Dufresne-Henry personnel. The borings are designated DH-1 through DH-5. Boring DH-1 was located northwest of the former UST's, and approximately 18 feet northeast of the on-site water well.

Borings DH-2 and DH-5 were located approximately 15 feet north and south of the former UST's respectively. Boring DH-3 was located southwest of the house in the vicinity of the septic system. Boring DH-4 was located just east of the house at the top of the bank. The test borings were performed using the Geoprobe® methodology. A site sketch showing the well locations is included as Appendix C. Logs of the borings are included in Appendix D.

Each of the borings but one was taken to refusal, with refusal defined as the limit of practical advancement using the available equipment. Borings DH-1, DH-2, DH-3, and DH-5 were advanced using a truck mounted hydraulic ram. Boring DH-4 was inaccessible to the truck, and was advanced by driving the sampler with a sledge hammer. Depths to refusal were 8', 6'9", 7'10", and 11'8" for borings DH-1, DH-2, DH-3, and DH-5 respectively. Boring DH-4 was stopped at 10'.

During boring advancement continuous soil samples were obtained in plastic sleeves. Representative portions of each sampling interval were screened for the presence of Volatile Organic Compounds (VOC's) with a Photovac MicroTIP HL-2000 photoionization detector (10.6 eV lamp, calibrated with 100 ppm Isobutylene). The screening was done at room temperature. No evidence of contamination by visual or olfactory sense was observed in any of the borings. PID readings at all locations were 0 ppm.

The general geologic column in all of the wells is silty till with occasional gravel and probable cobbles and boulders to the limit of the boring. In the vicinity of borings DH-2, DH-4, and DH-5 the material has been used as fill. Probable bedrock was encountered in each of the borings, except DH-4.

Site Geology

Surficial geology at the site is published as till. The borings corroborated that information. The native soil appears to have been used as fill in areas around the house. It is likely the till contains cobbles and boulders. The till typically had a grayer, less weathered appearance near the lower limits of the borings. The till appears to be generally dense and compact, and judged to have a relatively low permeability.

Published mapping indicates bedrock on the site is the Mount Holly Complex. The Mount Holly is generally described as fine-medium grained biotitic gneiss. Amphibolite and hornblende gneiss, mica schist, and quartz granulite are also found. The age is Precambrian. No bedrock outcroppings were observed in the immediate vicinity, although they may have been hidden by the snow cover at the time. The depth to bedrock is expected to be shallow in most areas.

Site Hydrogeology

As previously noted, the water table was not encountered in any of the borings. It is probable that a short term seasonal high water table would be observed in the spring. The site topography and depth to refusal suggest the overall direction of groundwater flow would likely be to the south and southeast.

Potential Receptors

Based on the 1986 Weston, VT USGS topographic quadrangle, in excess of 20 structures exist within a one-half mile radius of the site. Many of these are in the topographically downgradient direction. All are expected to have private water supplies. The nearest structure on the map is approximately 1,000 feet to the southeast. The closest private water supply is that serving the site. That well is located approximately 55 feet from the nearest former UST. The nearest surface water is the West River approximately 1,800 feet to the east and at an elevation approximately 300 feet lower. It is not expected that any of these receptors will be impacted. The Mac Nellis residence has a full basement on one end and a crawl space on the other. Bedrock is exposed in the crawl space. Three separate areas of the house were screened for the presence of VOC's on November 18, 1997 with an HNu HW-101 photoionization detector (10.2 eV lamp, calibrated with 100 ppm Isobutylene). A PID reading of 2.0 ppm was observed in the basement, with readings of 0 ppm in the upper and lower level living spaces. No petroleum vapors were noted at that time, nor has the owner observed any odors.

Soil Sampling

Soil samples from borings DH-1, DH-2, DH-4, and DH-5 were obtained at the time the borings were performed on November 18, 1997. Given the likelihood of refusal on bedrock in each of those borings, the analyzed soil was from the lowest retrieved sample. The refrigerated samples were forwarded to Eastern Analytical, Inc. of Concord, New Hampshire via overnight carrier on November 19, 1997. No compounds above detection limits were found in any sample when analyzed for VOC's by EPA Method 8020(mod) and for Total Petroleum Hydrocarbons (TPH) by EPA Method 8100(mod). A copy of the contract laboratory analytical report will be found in Appendix E.

Water Sampling

A water sample was obtained from the on-site drinking water well on November 18, 1997. The cold water tap was allowed to run for approximately five minutes before taking a sample. The refrigerated sample was forwarded to Eastern Analytical, Inc. via overnight carrier on November 19, 1997. No compounds above detection limits were found when analyzed by EPA Method 8020(mod). A copy of the contract laboratory analytical report will be found in Appendix E.

Summary and Recommendations

In summary, five (5) Geoprobe® test borings were completed on the site. Four (4) of the borings were to refusal. The borings were arrayed upgradient of, immediately adjacent to, and downgradient of the former UST's. No evidence of contamination by visual or olfactory senses was observed in any of the borings. Headspace PID readings were 0 ppm. Soil samples from four (4) of the borings were analyzed for VOC's by EPA Method 8020(mod) and for TPH by EPA Method 8100(mod). None of the samples contained compounds above method detection limits. Probable bedrock was encountered in four (4) of the borings at depths ranging from approximately 6'9" to approximately 11'8". The water table was not encountered. The overall slope of the bedrock surface appears to be to the south and southeast. It is likely that any movement of a short term seasonal high water table is also in that direction.

Analysis of a sample from the on-site drinking water well found no compounds above detection limits when analyzed by EPA Method 8020(mod). A PID screening was performed in the residence. PID readings of 0 ppm were observed in the upper and lower level living spaces. A reading of 2.0 ppm was observed in the basement. The basement contains an above ground heating oil storage tank. Petroleum odors were not observed during the screening, nor have any odors been reported by the owner.

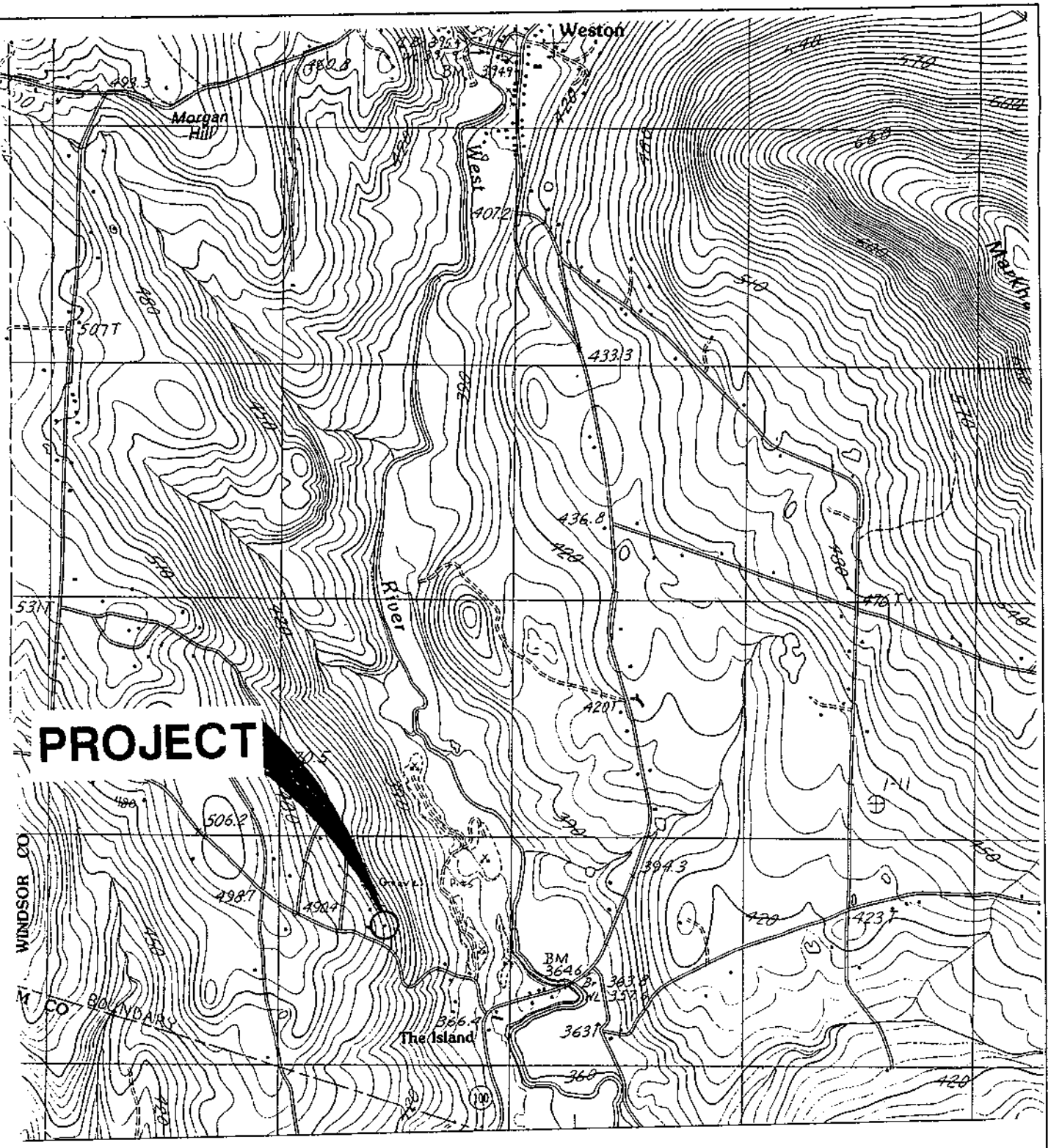
All properties in the vicinity of the site are expected to have individual water supplies. The nearest private water supply is the drilled well serving the property. That well is approximately 60' from the former UST location, and at the same approximate elevation. The nearest surface water is the West River approximately 1,800 feet to the east and approximately 300 feet lower in elevation. It is not expected that any sensitive receptors have been, or will be, impacted by leakage from the former UST's.

Soil contamination on the site appears to be limited to the immediate vicinity of the former UST's. Groundwater was not observed at the time of the UST closure, nor during the site investigation. Plume migration from any short term seasonal high water table conditions is likely to be minimal. It is expected that natural degradation of the plume will occur on site.

Based on these findings, the site does not meet the SMS criteria for corrective actions. It is recommended that the site be considered for a Site Management Activity Completed (SMAC) designation.

APPENDIX A

SITE LOCATION MAP



SCALE
1:24,000

TAKEN FROM A USGS QUAD. SHEET FOR WESTON, VT
PHOTOREVISED IN 1981

Dufresne-Henry, Inc.
A DVI Company
Precision Park
No. Springfield,
Vermont 05150
Tel. (802)886-2261 Fax (802)886-2260

SITE LOCATION PLAN
PREPARED FOR
THE MACNELLIS RESIDENCE
WESTON, VERMONT

Project No.	4170077
Proj. Mgr.	B.H.C.
Date	NOV. '97
B	SLP-1

APPENDIX B

SITE INVESTIGATION REQUEST, WORK PLAN, SITE HEALTH AND SAFETY PLAN

State of Vermont

Department of Fish and Wildlife
Department of Forests, Parks and Recreation
Department of Environmental Conservation
State Geologist
RELAY SERVICE FOR THE HEARING IMPAIRED
1-800-253-0191 TDD>Voice
1-800-253-0195 Voice>TDD

AGENCY OF NATURAL RESOURCES
Department of Environmental Conservation
Waste Management Division
103 South Main Street/West Office
Waterbury, Vermont 05671-0404
(802) 241-3888
FAX (802) 241-3296

October 2, 1997

Ms. Shirley MacNellis
101 Johnson Hill
Weston, Vermont 05161

RE: Petroleum Contamination at MacNellis Residence
Weston, Vermont
SMS Site # 97-2202

Dear Ms. MacNellis:

The Sites Management Section (SMS) has received the Underground Storage Tank (UST) closure site assessment report outlining the subsurface conditions for the above referenced site, conducted by Dufresne-Henry, Inc. on June 24, 1997. This report, dated June 26, 1997, summarizes the degree and extent of contamination encountered during the assessment. The USTs removed include:

- UST #1 - 2,000 gallon No. 2 Fuel Oil UST
- UST #2 - 1,000 gallon No. 2 Fuel Oil UST

During the site activites, soils screened had concentrations ranging from 1.0 parts per million (ppm) to 795 ppm as measured by a Photovac photoionization detector (PID). The peak PID readings of 795 ppm and 158 to 315 ppm were measured near ground surface in the vicinity of the fill and vent pipe and in the north portion of the tank excavation, respectively. The contaminated soil was used to backfill the excavation due to the lack of a suitable on-site location for storage and treatment by polyencapsulation.

Site soils consisted of gravel. Groundwater was not encountered at the maximum depth of excavation of 10 feet below ground surface. Bedrock was estimated to be approximately 12 feet below ground surface based on exposures in the cellar crawlspace.

The UST closure site assessment report indicates that the vicinity of MacNellis Residence was inspected for potentially sensitive receptors. The receptors identified as potentially impacted or impacted include site soils and ambient airspace of a site building basement.

Based on the report information, the SMS has determined that additional work is necessary at the site in order to determine the severity of contamination present. Due to the possibility of contaminant impact to

nearby receptors, the SMS is requesting that retain the services of a qualified environmental consultant to perform the following:

- Further define the degree and extent of contamination to the soil.
- Determine if the ambient airspace beneath the site building has been impacted by the release using a PID. If the ambient airspace has been impacted, SMS requests that confirmatory sampling and laboratory analyses be performed using EPA Method TO-2.
- Determine the degree and extent of contamination, if any, to groundwater. A sufficient number of monitoring sites should be installed in locations which will adequately define the severity of contamination at the site. If groundwater is determined to be impacted, this investigation should demonstrate the hydraulic relationship of the contamination area to the on-site water supply well. All groundwater samples taken should be analyzed for BTEX and TPH compounds.
- Perform an updated assessment of the site to determine the potential for sensitive receptors to be impacted by the contamination. This update should be based on all the information available and should include basements of adjacent buildings, nearby surface water, and any public or private drinking water wells which are located within the vicinity of the site. If any water supplies appear at risk from this contamination, they should be sampled and analyzed for BTEX and MTBE compounds.
- Determine the need for a long term treatment and/or monitoring plan which addresses the groundwater contamination present at the site. The need for such a plan should be based on the results of the above investigations.
- Submit to the SMS a summary report which outlines the work performed, as well as provides conclusions and recommendations. Included should be analytical data, a site map showing the location of any potential sensitive receptors, stockpiled soils and monitoring or sample locations, an area map, detailed well logs (if appropriate) and a groundwater contour map.

Please have your consultant submit a preliminary work plan and cost estimate or a site investigation expressway notification form within fifteen days of your receipt of this letter so that it may be approved prior to the initiation of onsite work. Enclosed please find a list of consultants who perform this type of work in the area as well as the brochure "Selecting Your UST Cleanup Contractor," which will help you in choosing an environmental consultant.

Based on current information, the underground storage tanks at MacNellis Residence are eligible for participation in the Petroleum Cleanup Fund (PCF) as set forth in 10 V.S.A. §1941. An owner or permittee of an underground storage tank that does not hold private insurance that would otherwise provide coverage for this situation, is eligible for reimbursement from the fund for certain expenses. You must provide written proof to the SMS that you hold no other applicable insurance in order to receive reimbursement from the PCF. The owner or permittee must pay for the removal and/or repair of the failed tank(s). The fund will reimburse the tank owner or permittee for 100 percent of all eligible cleanup costs of up to $1 million. All expenditures must be pre-approved by the Agency or performed in accordance with the "*Site Investigation Guidance*" expressway program in order for reimbursement to occur. Please refer to the enclosed guidance document titled, "Procedures for Reimbursement from the Petroleum Cleanup Fund" for additional information concerning the PCF. The Secretary of the Agency of Natural Resources reserves the right to seek cost recovery of fund monies spent at the MacNellis Residence site if the Secretary concludes that is in significant violation of the Vermont Underground Storage Tank Regulations or the Underground Storage Tank statute (10 V.S.A., Chapter 59).

If you have any questions, please feel free to call me at (802) 241-3876.

Sincerely,

Chuck Schwer, Supervisor
Sites Management Section

cc: Weston Selectboard
Weston Health Officer
DEC Regional Office

CSmgb/wp/L12202.1ST

Proposed Work Plan
Site Investigation

MacNELLIS RESIDENCE
WESTON, VERMONT

This work plan outlines the tasks to be completed for a Site Investigation at the MacNellis Residence in Weston, Vermont. This plan has been prepared as a result of a petroleum product release discovered during a UST Closure Assessment. The UST's closed were (1) 2,000 gallon #2 heating oil, and (1) 1,000 gallon #2 heating oil tanks. Soil sample headspace PID readings ranging from 37 ppm to 795 ppm were observed. Bedrock was observed at a depth of approximately 12 feet. The water table was not encountered in the excavation.

The purpose of the investigation is to determine the existence and extent of subsurface petroleum contamination at the site. Due to the tight site conditions, shallow bedrock, and probable lack of groundwater, it is proposed to conduct the subsurface investigation using the Geoprobe® technology. The proposed test borings will be used to help ascertain the extent of a contamination plume and provide basic hydrogeologic data, if possible. A full field day has been assumed for the Geoprobe® work. It is anticipated that a minimum of four (4) probes will be completed. One of the probes will be in the immediate vicinity of the former UST's, one probe will be in the presumed upgradient direction, and the remaining probes arrayed in the downgradient direction. All field personnel are OSHA certified for hazardous site operations under 29 CFR part 1910.120.

TEST BORINGS

It is anticipated that the test borings will be completed using the Geoprobe® technology. The borings will be advanced either hydraulically or manually depending on site conditions at a given location. Total depth of the borings will be the decision of the Dufresne-Henry field inspector, but is anticipated to be refusal or below any observed contamination. Based on previous discussions with the SMS, monitoring wells will be installed in two (2) of the downgradient locations. The borings and monitoring well installations will be performed by Eastern Analytical, Inc. of Concord, New Hampshire and Dufresne-Henry personnel.

SOIL SAMPLING

Soil samples will be taken at various depths using the Geoprobe® equipment. The frequency of sampling will be a field decision of the Dufresne-Henry inspector. All soil samples will be screened for VOC's by headspace analysis with a Photovac MicroTIP HL-2000 photoionization detector (10.6 eV lamp, calibrated with Isobutylene). Boring logs of geology, PID readings, unusual observations, and monitoring well installations will be prepared.

MONITORING WELLS

Monitoring wells will be constructed from 3/4", machine slotted, threaded, flush joint, Schedule 40 PVC. Assuming no refusal, each monitoring well will consist of approximately 5' of screen with sufficient riser to reach approximately 2" below the surface grade. The bottom of the well will likely be set on bedrock. The bottom of all wells will be provided with a PVC cap or point, or a plug with an expanding gasket. An attempt will be made to backfill the annular space with clean silica sand. A protective monitoring well box will be installed flush with the surface. All wells will have removable top caps for sampling and sounding.

DECONTAMINATION

The borings may, or may not, be completed within the zone of contamination. However, to prevent cross contamination between the borings, strict decontamination procedures will be followed. All in-ground tools and equipment will be decontaminated prior to the start of work and between borings. All decontamination will be done on-site at a designated location. Disposal of spent cleaning solution will be at the site.

SOIL SAMPLING

Based on observations at the time of the UST Closure Assessment, it is not anticipated that groundwater will be encountered. Therefore, soil quality samples will be obtained from four (4) of the Geoprobe® locations. The location and depth of the samples will be a field decision of the Dufresne-Henry inspector based on the observed conditions. The samples will be analyzed for BTEX and MTBE by EPA Method 602(mod) and for TPH by EPA Method 8100(mod, Level II) by Eastern Analytical, Inc. of Concord, New Hampshire.

SITE SURVEY

The relative locations and elevations of the test probes will be determined. Sufficient additional surveying will be performed to update any existing site plan or prepare a new site plan.

RECEPTOR ASSESSMENT

A receptor assessment will be conducted to identify potential receptors including nearby water supply wells and surface water. The basements of any nearby buildings, if any, will be screened with the PID as deemed necessary. The basement of the MacNellis residence will be screened. If the ambient air space in the MacNellis residence has been impacted, one (1) round of confirmatory sampling and laboratory analysis will be performed using EPA Method TO-2.

REPORTING

A report will be prepared summarizing the findings and recommendations of the investigation including the test probes, soil quality analyses, overall characterization of shallow subsurface conditions, and the likely impacts on potential receptors. Conclusions and recommendations regarding the need for long term treatment and/or monitoring will be included. The report will be submitted within 30 days of the field work.

A summary breakdown of estimated costs to complete the work will be found attached.

Forwarded by: "Dufresne-Henry, Inc." <internet>
Forwarded to: bcox
Date forwarded: Fri, 31 Oct 1997 08:33:57 +0000
From: "Bob Butler" <BOBB@dec.anr.state.vt.us>
To: bcox@d-hinc.com
Date sent: Thu, 30 Oct 1997 12:52:07 -0500
Subject: 97-2202, MacNellis Work Plan
Copies to: Chuck Schwer <chucks@dec.anr.state.vt.us>
Priority: normal

I have reveiwed and approve of your work plan dated October 21, 1997 for the referenced site. The approval is subject to the following condition:

1) reimbursement of costs is subject to the conditions stipulated in the document "Procedures for Reimbursement from the Petroleum Cleanup Fund" dated September 1995.

For my records, please email me a date by which SMS can expect a report for this work. I am tracking deliverables.

If you have any questions, please don't hesitate to contact me.

Thank you,

Bob Butler
Sites Management Section / Waste Management
Department of Environmental Conservation
bobb@dec.anr.state.vt.us
(802) 244-3892

HEALTH AND SAFETY PLAN
FOR
U.S.T Removal / Monitoring Well Sampling

Location: MacNellis Residence Johnson Hill Rd. Weston, VT

This Health and Safety Plan applies only to Dufresne-Henry Inc. employees.

PROPOSED ON-SITE ACTIVITIES: Soil Sampling

PROPOSED DATE(S) OF WORK: Tuesday, November 18, 1997

ANTICIPATED WEATHER CONDITIONS: Cloudy, Cool, 35°

PROPOSED SITE INVESTIGATION TEAM: Oscar Garcia

Personnel	Responsibilities
Bruce H. Cox	Project Manager
Senior D-H Employee on-site	Site Safety Officer
Senior D-H Employee on-site	Field Team Leader
	Site Representative
	ANR Representative

Site Status: __X__Active ____Inactive
Site History: Residence
Site Description: Residence

HAZARD REFERENCE

Waste Types: X Liquid X Solid X Sludge X Vapor

Waste Characteristics:
___ Corrosive _X_ Ignitable _X_ Volatile ___ Reactive ___ Unknown ___ Persistent

Specific Substances of Greatest Concern (if known):
____Gasoline ____Diesel __X__Fuel Oil ____Waste Oil ____Other

HAZARD EVALUATION

Sampling Assessment: _X_ Low ___ Medium ___ High

Identification of Hazards:
Possible OHW or UGW, Heavy equipment

OVERALL HAZARD: ___ Serious ___ Moderate _X_ Low

MONITORING PROCEDURES

X Photo-Vac Micro-Tip (Model HL-2000, 10.6 eV probe)
_ Explosimeter/O2 meter (if required)

Frequency of Monitoring

Air - not to exceed every 15 mins.
Soil - as obtained

Upgrade / Downgrade Contingency Plan

DH personnel will not expose themselves to conditions where PID readings exceed 10 ppm in the breathing zone for longer than 5 minutes, LEL readings above 10%, or oxygen levels below 19.5% or above 23.5%.

EMERGENCY INFORMATION

AMBULANCE:	Phone: 911 or 824-3166
POLICE:	Phone: 911 or 824-3915
FIRE DEPARTMENT:	Phone: 911 or 824-3166
VT DEC INCIDENT RESPONSE:	Phone: VT (802)241-3888
NH DES INCIDENT RESPONSE:	NH (603)271-3440

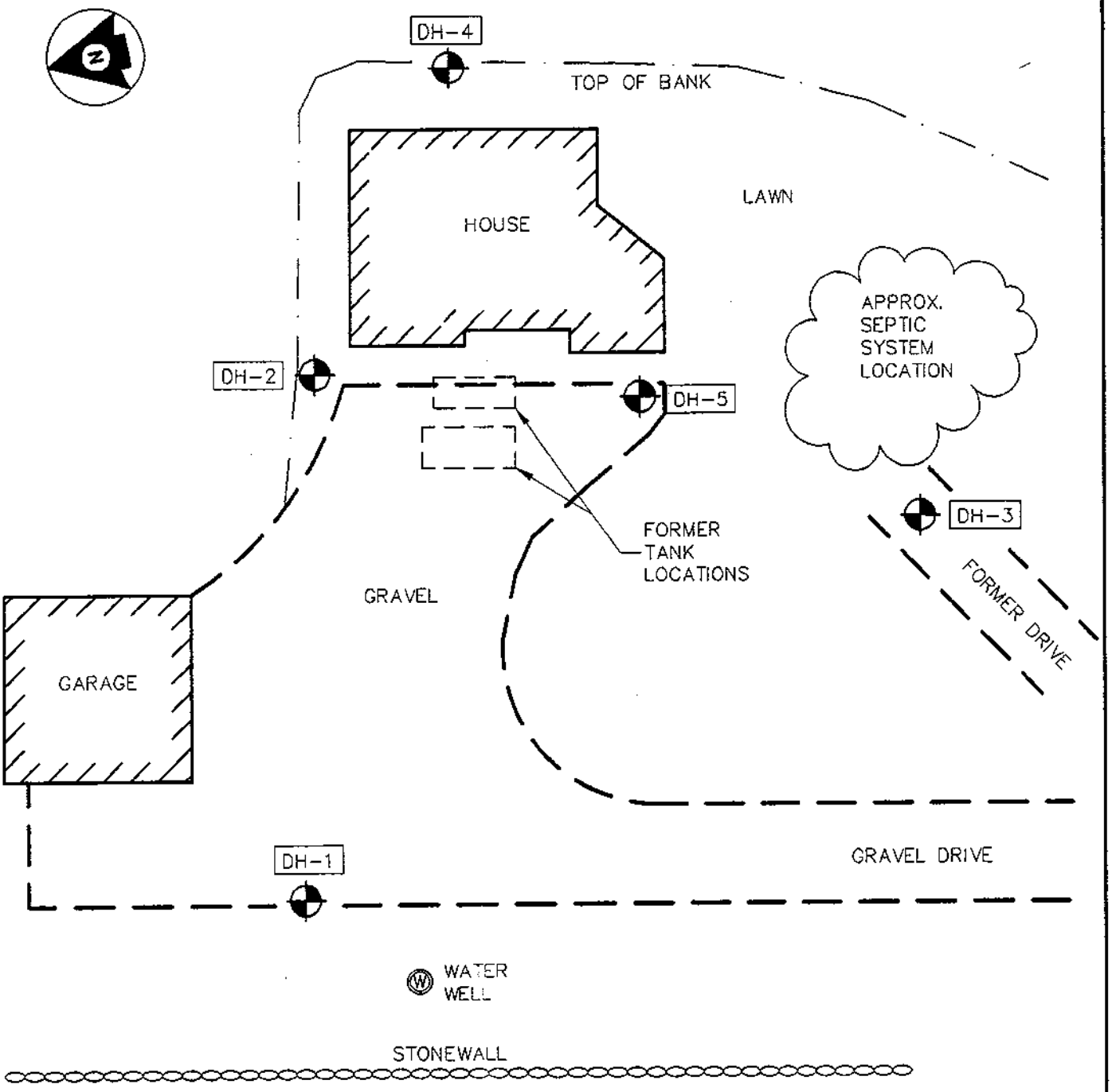
CORPORATE:
Dufresne-Henry Inc., Precision Park, North Springfield, VT 05150-0029
Phone: (802) 886-2261
Project Manager: Bruce H. Cox

The following individuals have read this saftey document, and are familiar with its' contents, site conditions, and on-site saftey procedures. Please sign and note your company below:

Name	Company
F. David Deane (FDD)	Dufresne-Henry, Inc.
Bruce Cox (BHC)	Dufresne-Henry, Inc.
Oscar Garcia Jr. (ODG)	Dufresne-Henry, Inc.
Anna Boxer (AMB)	Dufresne-Henry, Inc.

APPENDIX C

SITE PLAN



LEGEND:

TEST BORING

DH-1 TEST BORING DESIGNATION

SITE PLAN

1" = 20'

Dufresne-Henry, Inc.
A DVI Company
Precision Park
No. Springfield,
Vermont 05150
Tel. (802)886-2261 Fax (802)886-2260

SITE PLAN
PREPARED FOR
THE MACNELLIS RESIDENCE
WESTON, VERMONT

Project No.	4170077
Proj. Mgr.	B.H.C.
Date	DEC. '97
B	SP-1

APPENDIX D

BORING LOGS

BORING LOCATION TB-1 INCLINATION V BEARING DATE START/FINISH 11/18/97 / 111/18/97

CASING ID CORE SIZE TOTAL DEPTH 8 FT DRILLED BY: EASTERN ANALYTICAL, INC. (D.N./O.G.)

GROUND EL (AD) 998.86 DEPTH TO WATER/DATE DRY FT/ IMMED. LOGGED BY: B. COX

ELEV	SAMPLE				LENGTH				
AD (FT)	DEPTH (FT)	TYPE AND NO.	B	SAMP OD (IN)	REC (IN)	PENE-TRATION (IN)	REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
990.86	8			1.75					0" - 4"± ORGANIC SOIL. 4" - 15"'± Medium brown sandy GRAVEL. 15" - 8' Medium gray brown TILL. Very fine - occasionally coarse grained, moderately well sorted sand. 30%± non plastic fines. 20%+ gravel 1/4" - 2"+. Dry - slightly moist. No odor or staining. 0 ppm.
									Refusal on probable bedrock at 8'.

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
REC - Length of sample recovered.
SS - Split spoon sample.
U - Undisturbed samples
S - Shelby tube D - Denison
F - Fixed piston P - Pitcher
O - Osterberg
SAMP OD - Outside diameter of sampling spoon

NOTES

Boring advanced by machine driven Geoprobes®.

ppm Refers to PID reading (10.6 eV lamp)

INITIAL SITE INVESTIGATION
MAC NELLIS RESIDENCE

WESTON, VERMONT

DATE: 11/18/97 PROJECT: 4170077

PAGE 1 OF 1 LOG OF BORING: TB-1

DH DUFRESNE-HENRY, INC.

BORING LOCATION TB-2 INCLINATION V BEARING DATE START/FINISH 11/18/97 / 111/18/97

CASING ID CORE SIZE TOTAL DEPTH 6.75 FT DRILLED BY: EASTERN ANALYTICAL, INC. (D.N./O.G.)

GROUND EL (AD) 996.81 DEPTH TO WATER/DATE DRY FT/ IMMED. LOGGED BY: B. COX

ELEV	SAMPLE				LENGTH				
AD (FT)	DEPTH (FT)	TYPE AND NO.	B	SAMP OD (IN)	REC (IN)	PENE-TRATION (IN)	REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
990.06	6.75			1.75					0" - 3"± ORGANIC SOIL. 3" - 6'6" Medium gray brown TILL FILL. Very fine - occasionally very coarse grained, moderately poorly sorted sand. 30%± non plastic fines. 20%+ gravel 1/4" - 2"+. Dry - slightly moist. No odor or staining. 0 ppm.
									Refusal on probable bedrock at 6'9".

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
REC - Length of sample recovered.
SS - Split spoon sample.
U - Undisturbed samples
S - Shelby tube D - Denison
F - Fixed piston P - Pitcher
O - Osterberg
SAMP OD - Outside diameter of sampling spoon

NOTES

Boring advanced by machine driven Geoprobes®.

ppm Refers to PID reading (10.6 eV lamp)

INITIAL SITE INVESTIGATION
MAC NELLIS RESIDENCE

WESTON, VERMONT

DATE: 11/18/97 PROJECT: 4170077

PAGE 1 OF 1 LOG OF BORING: TB-2

DH DUFRESNE-HENRY, INC.

BORING LOCATION TB-3 INCLINATION V BEARING DATE START/FINISH 11/18/97 / 111/18/97

CASING ID CORE SIZE TOTAL DEPTH 7.83 FT DRILLED BY: EASTERN ANALYTICAL, INC. (D.N./O.G.)

GROUND EL (AD) 991.45 DEPTH TO WATER/DATE DRY FT/ IMMED. LOGGED BY: B. COX

ELEV	SAMPLE				LENGTH				
AD (FT)	DEPTH (FT)	TYPE AND NO.	B	SAMP OD (IN)	REC (IN)	PENE-TRATION (IN)	REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
983.62	7.83			1.75					0" - 6"± Medium brown, silty, gravelly SAND with occasional organics.. 6" - 7'10" Medium gray brown TILL. Very fine - occasionally very coarse grained, moderately poorly sorted sand. 30%± non plastic fines. 20%+ gravel 1/4" - 2"+. Dry - slightly moist. No odor or staining. 0 ppm.
									Refusal on probable bedrock at 7'10".

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
REC - Length of sample recovered.
SS - Split spoon sample.
U - Undisturbed samples
S - Shelby tube D - Denison
F - Fixed piston P - Pitcher
O - Osterberg
SAMP OD - Outside diameter of sampling spoon

NOTES

Boring advanced by machine driven Geoprobes®.

ppm Refers to PID reading (10.6 eV lamp)

INITIAL SITE INVESTIGATION
MAC NELLIS RESIDENCE

WESTON, VERMONT

DATE: 11/18/97 PROJECT: 4170077

DH DUFRESNE-HENRY, INC.

BORING LOCATION TB-4 INCLINATION V BEARING DATE START/FINISH 11/18/97 / 111/18/97

CASING ID CORE SIZE TOTAL DEPTH 10 FT DRILLED BY: EASTERN ANALYTICAL, INC. (D.N./O.G.)

GROUND EL (AD) 988.92 DEPTH TO WATER/DATE DRY FT/ IMMED. LOGGED BY: B. COX

ELEV	SAMPLE				LENGTH				
AD (FT)	DEPTH (FT)	TYPE AND NO.	B	SAMP OD (IN)	REC (IN)	PENE-TRATION (IN)	REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
978.92	10			1.0					Medium brown and gray brown, gravelly, silty, sandy TILL FILL. Very fine - occasionally very coarse grained, moderately poorly sorted sand. 20% - 30% non plastic fines. Dry - occasionally moist. No odor or staining. 0 ppm.
									No refusal to depth.

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
REC - Length of sample recovered.
SS - Split spoon sample.
U - Undisturbed samples
S - Shelby tube D - Denison
F - Fixed piston P - Pitcher
O - Osterberg
SAMP OD - Outside diameter of sampling spoon

NOTES

Boring advanced by manually driven Geoprobes®.

ppm Refers to PID reading (10.6 eV lamp)

INITIAL SITE INVESTIGATION
MAC NELLIS RESIDENCE

WESTON, VERMONT

DATE: 11/18/97 PROJECT: 4170077

PAGE 1 OF 1 LOG OF BORING: TB-4

DH DUFRESNE-HENRY, INC.

BORING LOCATION TB-5 INCLINATION V BEARING DATE START/FINISH 11/18/97 / 111/18/97

CASING ID CORE SIZE TOTAL DEPTH 11.67 FT DRILLED BY: EASTERN ANALYTICAL, INC. (D.N./O.G.)

GROUND EL (AD) 998.56 DEPTH TO WATER/DATE DRY FT/ IMMED. LOGGED BY: B. COX

ELEV	SAMPLE				LENGTH				
AD (FT)	DEPTH (FT)	TYPE AND NO.	B	SAMP OD (IN)	REC (IN)	PENE-TRATION (IN)	REMARKS ON ADVANCE OF BORING	SIZE/TYPE BIT USED TO ADVANCE BORING	SOIL AND ROCK DESCRIPTION
986.89	11.67			1.75					0" - 3"± ORGANIC SOIL. 3" - 11'8" Medium gray brown TILL FILL. Very fine - occasionally very coarse grained, moderately poorly sorted sand. 30%± non plastic fines. 20%+ gravel 1/4" - 2"+. Dry - slightly moist. No odor or staining. 0 ppm.
									Refusal on probable bedrock at 11'8".

B - Penetration resistance, Blows/6" of a 140 lb hammer falling 30 in to drive a split spoon sampler.
REC - Length of sample recovered.
SS - Split spoon sample.
U - Undisturbed samples
S - Shelby tube D - Denison
F - Fixed piston P - Pitcher
O - Osterberg
SAMP OD - Outside diameter of sampling spoon

NOTES

Boring advanced by machine driven Geoprobes®.

ppm Refers to PID reading (10.6 eV lamp)

INITIAL SITE INVESTIGATION
MAC NELLIS RESIDENCE

WESTON, VERMONT

DATE: 11/18/97 PROJECT: 4170077

PAGE 1 OF 1 LOG OF BORING: TB-5

DH DUFRESNE-HENRY, INC.

APPENDIX E

CONTRACT LABORATORY ANALYTICAL REPORT

eastern analytical

professional laboratory services

Bruce Cox
Dufresne-Henry
Precision Park
N. Springfield, VT 05150

Subject: Laboratory Report

Eastern Analytical, Inc. ID:	10784 DUFVT
Client Identification:	4170077/MacNellis VT
Date Received:	11/20/97
Sample Quantity/Type:	4 soil
	1 aqueous

Dear Mr. Cox :

Enclosed please find the laboratory report for the above identified project. All analyses were subjected to rigorous quality control measures to assure data accuracy. Unless otherwise stated, all holding times, preservation techniques, container types and sample condition adhered to EPA protocol.

The following standard abbreviations and conventions apply throughout all Eastern Analytical, Inc. reports:

- < = "less than" followed by the detection limit
- TNR = Testing Not Requested
- ND = None Detected, no established detection limit
- BRL = Below Reporting Limits

If you have any questions regarding the results contained within, please feel free to directly contact me, the department supervisor, or the analytical chemist who performed the testing in question. Unless otherwise requested, we will dispose of the sample(s) 30 days from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,

Will Brunkhorst (fw)
Will Brunkhorst, President

12/10/97
Date

LABORATORY REPORT

Eastern Analytical, Inc. ID#: 10784

Client: Dufresne-Henry

Client Designation: 4170077/MacNellis VT

Volatile Organic Compounds

Sample ID:	DH-1	DH-2	DH-4	DH-5	Tap
Matrix:	Soil	Soil	Soil	Soil	Aqueous
Date Received:	11/20/97	11/20/97	11/20/97	11/20/97	11/20/97
Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/L
Date of Analysis:	11/26/97	11/26/97	11/26/97	11/26/97	11/25/97
Analyst:	VG	VG	VG	VG	VG
Method:	* 8020 mod	* 8020 mod	* 8020 mod	* 8020 mod	* 8020 mod
MTBE	< 600	< 500	< 600	< 500	< 10
Benzene	< 60	< 50	< 60	< 50	< 1
Toluene	< 60	< 50	< 60	< 50	< 1
Ethylbenzene	< 60	< 50	< 60	< 50	< 1
m,p-Xylene	< 60	< 50	< 60	< 50	< 1
o-Xylene	< 60	< 50	< 60	< 50	< 1

* mod: MTBE included in compound calibrations.

Approved By: Clifford Chase, Volatile Organics Supervisor

LABORATORY REPORT

Eastern Analytical, Inc. ID#: **10784** DUFVT

Client: Dufresne-Henry

Client Designation: **4170077/MacNellis VT**

Sample ID:	DH-1	DH-2	DH-4	DH-5
Matrix:	soil	soil	soil	soil
Date Received:	11/20/97	11/20/97	11/20/97	11/20/97
Units:	mg/kg	mg/kg	mg/kg	mg/kg
Date of Extraction:	11/21/97	11/21/97	11/21/97	11/21/97
Date of Analysis:	11/21/97	11/21/97	11/21/97	11/21/97
Analyst:	DJS	DJS	DJS	DJS
EPA Method:	8100(mod)	8100(mod)	8100(mod)	8100(mod)
Total Petroleum Hydrocarbons	< 50	< 50	< 50	< 50

Approved by: Timothy Schaper, Organics Supervisor

Timothy P. Schaper

eastern analytical, inc.
25 Chenell Drive / Concord, NH 03301 / TEL (603) 228-0525 / 1-800-287-0525
FAX (603) 228-4591 / E-Mail : front_office@eailabs.com

10784

CHAIN-OF-CUSTODY RECORD

Page 1 of 1

REQUESTED ANALYSES

ITEM # for lab use only	SAMPLE I.D.	SAMPLING DATE / TIME	MATRIX (A - Air, S - Soil, GW - Ground Water, SW - Surface Water, DW - Drinking Water, WW - Waste Water, ☐ Other)	G-Grab C-Comp	524.2	☐ 8240 ☐ 8260 ☐ 624	☐ 8010 ☐ 601	☐ 8020 ☒ 602	☐ 8015 ☐ 8021	☐ MA VPH ☐ ME GRO	☐ MA EPH ☐ ME DRO	TPH ☐ 8100 MOD ☒ LI ☐ LIII	☐ 8270 ☐ 625 ☐ ABN ☐ A ☐ BN ☐ PAH	☐ 8080 ☐ 608 ☐ PCBs ☐ Pesticides	Metals (list below) Total	Metals (list below) Dissolved	Metals (list below) ☐ TCLP ☐ EPTOX	☐ pH ☐ Spec. Con. ☐ BOD	☐ COD ☐ TOC ☐ Phenols	☐ TKN ☐ NH3 ☐ T. Phos.	☐ CN ☐ Formaldehyde	☐ TSS ☐ TDS ☐ TS	☐ F ☐ Cl ☐ SO4 ☐ NO2 ☐ NO3	☐ Oil & Grease	☐ Flashpoint ☐ Ignitability	☐ T. Alk ☐ Carb. Alk ☐ Bi. Alk	# Of Containers	NOTES
		11-18-97																										
1	DH-1	A.M.	S	✓				✓				✓																2	
2	DH-2	"	S	✓				✓				✓																2	
3	DH-4	"	S	✓				✓				✓																2	
4	DH-5	P.M.	S	✓				✓				✓																2	
5	Tap	P.M.	W	✓				✓																				2	
Low level detection limits (check if needed and list in notes)																													
PRESERVATIVE : H-HCl ; N-HNO3 ; S-H2SO4 ; Na-NaOH																													

PROJECT MANAGER : B. Cox

COMPANY : Dufresne - Henry Inc

ADDRESS : Precision Park

CITY : N. Sqfld STATE VT ZIP 05150

PHONE : (802) 885-2261 EXT : 432

FAX : -2260

E-MAIL :

PROJECT I.D. : 4130077 / Marshellis

STATE/ NH: ☐ OTHER :

☐ Site historically contaminated ☐ Compliance Testing

RESULTS NEEDED BY

(enter preferred date) :

(Guaranteed rapid turnaround must have pre-approval)

NOTES : (i.e. Special Detection Limits, Billing Info. if different)

1) DH-2 bottom broke off 1 of the jars able to transfer to new jar.

QA / QC Reporting Level ☐ A ☐ B ☐ C

Quote #

P.O. #

Custody Seal Intact ? ☐ Yes ☐ No

Cold ? ☐ Yes ☐ No

Reporting Options ☒ Hard Copy ☒ Fax

Electronic : ☐ E-Mail ☐ Disk

Sampler(s): Steve Goreau / Dave Newman

Relinquished by	Date	Time	Received by
Dave Newman	11/19/97		Scott Kelly
			11/20/97 1100

WHITE : *Original* YELLOW : *Lab Files* PINK : *Project Manager*